

FIG. 1

| NORTEL NETWORKS - PROBLEM MANAGER | | | | | |
|--|---------|--------|--------------|------|-----------------|
| PROBLEM LIST | | | | | |
| PROBLEM | VIOLAT' | ALARMS | DEGRAD' COST | TIME | |
| SONET: EXPERIENCING TRAFFIC LOSS, RECEIVE NOT PROTECTED | 9 | 8 | 10 | 4 | 1/3/00 14:39:48 |
| SONET: EXPERIENCING TRAFFIC LOSS, TRANSMIT NOT PROTECTED | 9 | 9 | 7 | 5 | 1/3/00 14:24:42 |
| FR: SUBSYSTEM FAILURE, CONNECTIONS ARE DOWN | 9 | 23 | 14 | 3 | 1/3/00 14:16:31 |
| ATM: LOGICAL PATH SIGNAL LOST | 8 | 22 | 14 | 5 | 1/3/00 14:13:36 |
| SONET: REMOTE LINE HAS FAILED | 4 | 8 | 6 | 5 | 1/3/00 14:11:34 |
| SWITCHING: TRUNK CONNECTIONS ARE DOWN | 9 | 11 | 24 | 4 | 1/3/00 14:15:09 |
| CAUSE AND CORRECTION: | | | | | |
| TRANSMIT TRAFFIC IS NOT PROTECTED ON NE 294 OC3G1s. THE NEAR-END OPTICAL CARD DETECTED A PROBLEM ON ITS TRANSMITTED OPTICAL SIGNAL | | | | | |
| DOCUMENT REFERENCE: | | | | | |
| 432-3653-821-ubal | | | | | |

FIG.2A

| DETAILS | | 216 | | 218 | | 220 | |
|---|---------------|--------|-----------------|--------------------------|------------|----------------|---|
| SERVICE VIOLATIONS | | ALARMS | | PERFORMANCE DEGRADATIONS | | | |
| CUSTOMER | CUST. SERVICE | LEVEL | METRIC | DELIVERED | AGREED | PENALTY/IMPACT | |
| ACURA CANADA | FRAME RELAY | SILVER | SERVICE AVAIL. | 95.2% | > 98.5% | \$300/s | △ |
| AIR CANADA | VPN | GOLD | MTBF | 2 DAYS | < 5 DAYS | \$500/s | |
| GENERAL MOTORS | MEGAROUTE | GOLD | LATENCY | 168 msec | < 150 msec | \$80/s | |
| JOE'S GARAGE | IP | BRONZE | DIAL PORT AVAIL | 93% | > 95% | \$25/s | |
| MICROCELL SOLUT'N | AMPS TRUNK | GOLD + | SERVICE AVAIL. | 96.3% | > 99.5% | \$500/s | |
| MICROCELL SOLUT'N | AMPS TRUNK | GOLD + | NETWORK AVAIL | 98% | > 99.9% | \$750/s | |
| NATIONAL POST | FRAME RELAY | GOLD + | PACKET LOSS | 1.75% | > 0.7% | \$150/s | |
| SEARS CANADA | FRAME RELAY | GOLD | PACKET LOSS | 1.75% | < 1% | \$50/s | |
| SYMPATICO | IP VPN | GOLD | MTBF | 2 DAYS | > 5 DAYS | \$500/s | ▽ |
| 9 SLA(s) TOTAL AT LAST REFRESH: 02/02/00 14:35:22 | | | | | | | |

| METRIC | AGREED | PENALTY | METRIC | AGREED | PENALTY |
|-----------------|-----------|-----------|--------------|-----------|----------|
| (MTTR): | < 5 HOURS | \$200/hr | PORT AVAIL.: | > 95.0% | \$25/sec |
| (MTBF): | > 3 DAYS | \$500/sec | LATENCY: | < 150msec | \$80/sec |
| NETWORK AVAIL.: | 99.7% | \$750/sec | PACKET LOSS: | 99.7% | \$50/sec |
| SERVICE AVAIL.: | 99.5% | \$500/sec | DISCARDS: | < 0.8% | \$50/sec |

CONTACT INFORMATION:

| | |
|----------------|-----------------------------|
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| OTTAWA, CANADA | e-mail: mbender@company.com |
| K1K 2K2 | |

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FIG. 2B

| NORTEL NETWORKS - PROBLEM MANAGER | | | | | |
|--|-----|-----|-----|-----|-----------------|
| PROBLEM LIST | | | | | |
| PROBLEM | 152 | 154 | 156 | 158 | |
| SONET: EXPERIENCING TRAFFIC LOSS, RECEIVE NOT PROTECTED | 9 | 8 | 10 | 4 | 1/3/00 14:39:48 |
| SONET: EXPERIENCING TRAFFIC LOSS, TRANSMIT NOT PROTECTED | 9 | 9 | 7 | 5 | 1/3/00 14:24:42 |
| FR: SUBSYSTEM FAILURE, CONNECTIONS ARE DOWN | 9 | 23 | 14 | 3 | 1/3/00 14:16:31 |
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| SONET: REMOTE LINE HAS FAILED | 4 | 8 | 6 | 5 | 1/3/00 14:11:34 |
| SWITCHING: TRUNK CONNECTIONS ARE DOWN | 9 | 11 | 24 | 4 | 1/3/00 14:15:09 |
| CAUSE AND CORRECTION: | | | | | |
| TRANSMIT TRAFFIC IS NOT PROTECTED ON NE 294 OC3G's. THE NEAR-END OPTICAL CARD DETECTED A PROBLEM ON ITS TRANSMITTED OPTICAL SIGNAL | | | | | |
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| 432-3653-821-ubal | | | | | |

FIG. 3A

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DETAILS

SERVICE VIOLATIONS ALARMS PERFORMANCE DEGRADATIONS

| NE NAME | TYPE | UNIT | REASON | SEVERITY | TIME |
|----------------|------|------------|-----------------|-------------|-----------------|
| 1008 B0ATM01 | COM | COMMUNI... | Rx AIS | CRITICAL SA | 1/3/00 14:50:07 |
| 1008 B0ATM01 | COM | COMMUNI... | COMMSUBSYSTEM | MAJOR SA | 1/3/00 14:50:29 |
| 1008 B0ATM01 | COM | CELL | LCD | CRITICAL SA | 1/3/00 14:50:04 |
| 1008 B0ATM01 | COM | NEAR PATH | DEGRADED SIGNAL | MINOR NSA | 1/3/00 14:50:13 |
| 1011 CleoATM01 | COM | OPERATOR | OPERATION COND | CRITICAL SA | 1/3/00 14:52:24 |
| 1011 CleoATM01 | COM | OPERATOR | OPERATION COND | CRITICAL SA | 1/3/00 14:52:24 |
| 1011 CleoATM01 | COM | COMMUNI... | COMMSUBSYSTEM | MAJOR SA | 1/3/00 14:52:43 |
| 514 CleoATM01 | FAC | OC3 G4 | Rx AIS | WARNING NSA | 1/3/00 14:52:32 |
| 1008 B0ATM01 | COM | CELL | LCD | MAJOR SA | 1/3/00 14:50:04 |

9 ALARM(S) TOTAL AT LAST REFRESH: 02/02/00 14:35:22 **REFRESH NOW**

ALARM TYPE: COMMUNICATIONS ACKNOWLEDGED BY: LIQIANG REASON:

COMPONENT: Lp/2 SONET/IO PATH/0 DISPLAY: BMERHFBB:0.0

ALARM: CRITICAL HOSTNAME: BMERHFBB

TIME: 1/3/00 8:43

LOSS OF FRAME. LOSS OF
CELL DELINIATION HAS
BEEN DETECTED. CHECK
THE CABLING AND
CONFIGURATION.

FIG. 3B

| NORTEL NETWORKS - PROBLEM MANAGER | | | | | | |
|--|---------|--------|---------|------|-----------------|--|
| PROBLEM LIST | | | | | | |
| PROBLEM | VIOLAT' | ALARMS | DEGRAD' | COST | TIME | |
| SONET: EXPERIENCING TRAFFIC LOSS, RECEIVE NOT PROTECTED | 9 | 8 | 10 | 4 | 1/3/00 14:39:48 | |
| SONET: EXPERIENCING TRAFFIC LOSS, TRANSMIT NOT PROTECTED | 9 | 9 | 7 | 5 | 1/3/00 14:24:42 | |
| FR: SUBSYSTEM FAILURE, CONNECTIONS ARE DOWN | 9 | 23 | 14 | 3 | 1/3/00 14:16:31 | |
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| SONET: REMOTE LINE HAS FAILED | 4 | 8 | 6 | 5 | 1/3/00 14:11:34 | |
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| CAUSE AND CORRECTION: | | | | | | |
| TRANSMIT TRAFFIC IS NOT PROTECTED ON NE 294 OC3G1s. THE NEAR-END OPTICAL CARD DETECTED A PROBLEM ON ITS TRANSMITTED OPTICAL SIGNAL | | | | | | |
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| 432-3653-821-ubal | | | | | | |

FIG. 4A

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DETAILS

SERVICE VIOLATIONS | ALARMS | PERFORMANCE DEGRADATIONS

| NE NAME | TYPE | METRIC | ACTUAL | THRESHOLD | NETWORK SERVICE | TIME |
|-----------------|-----------|------------------|--------|-----------|-----------------|-----------------|
| BLUE-HAWKRTR | CLLI-AB | BECN | 592 | 615 | FRAME RELAY | 1/3/00 14:51:55 |
| 321 TERRANCE NT | DS1 G10 2 | LINE Rx ES | 900 | 800 | SONET BACKBONE | 1/3/00 9:15:01 |
| 562 BALLYRTR | CLLI-AC | MARG. CALL RATE | 10% | 10% | VOIP | 1/3/00 14:13:23 |
| 352 JANERTR | CLLI-AD | UNACC. CALL RATE | 3% | 4% | VOIP | 1/3/00 14:52:12 |
| 474 BANKRTR | CLLI-AA | UNACC. CALL RATE | 7% | 7% | VOIP | 1/3/00 14:37:42 |
| 241 ROCKTN | DS1 G10 2 | LINE Rx ES | 900 | 800 | FRAME RELAY CH. | 1/3/00 9:16:43 |
| 352 UPSIDERTR | CLLI-AD | UNACC. CALL RAE | 3% | 4% | VOIP | 1/3/00 9:16:49 |

7 PERFORMANCE DEGRADATION(S) TOTAL AT LAST REFRESH : 02/02/00 14:35:22

PERFORMANCE DEGRADATION GRAPHICAL DETAILS:

TOTAL VOLUME BY DAY

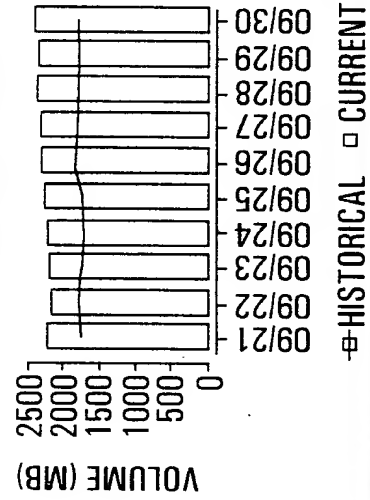


FIG. 4B

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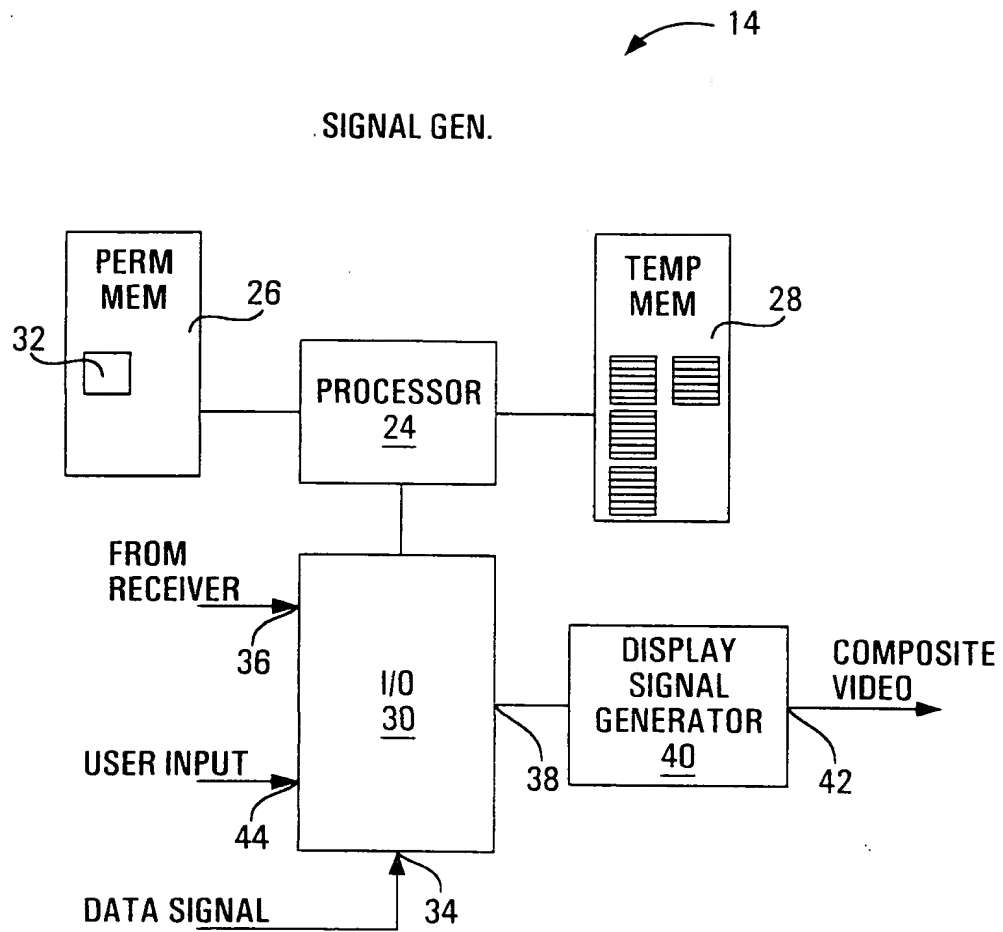


FIG. 5

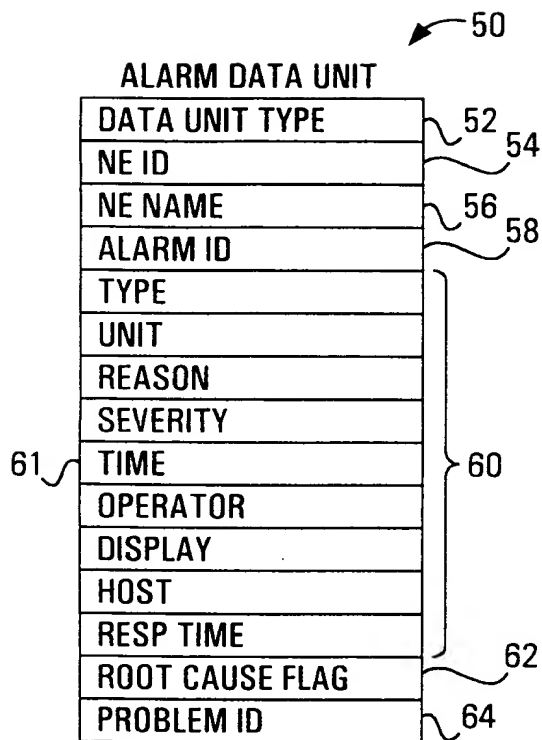


FIG. 6

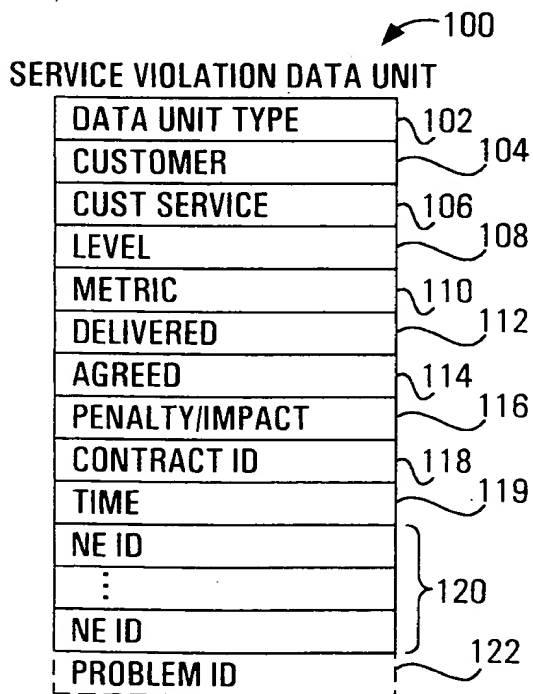


FIG. 8

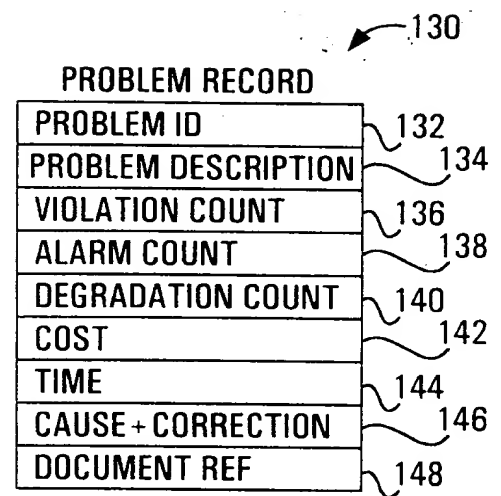


FIG. 9

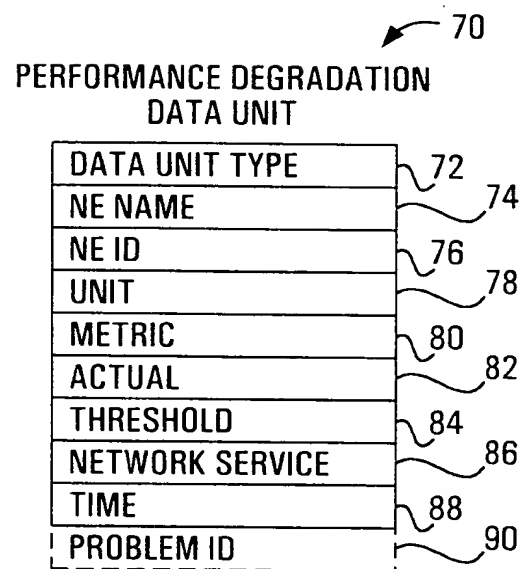


FIG. 7

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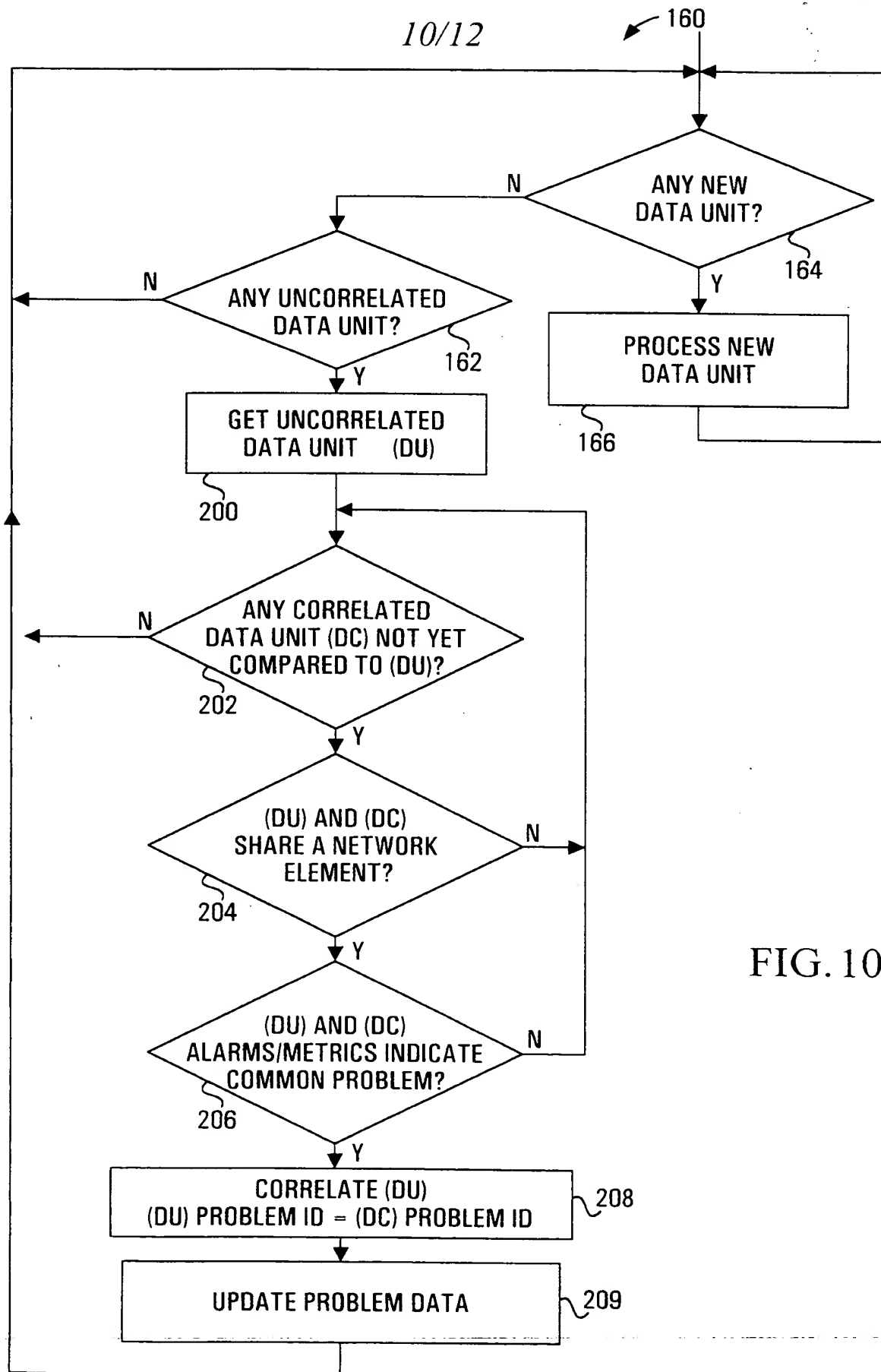


FIG. 10

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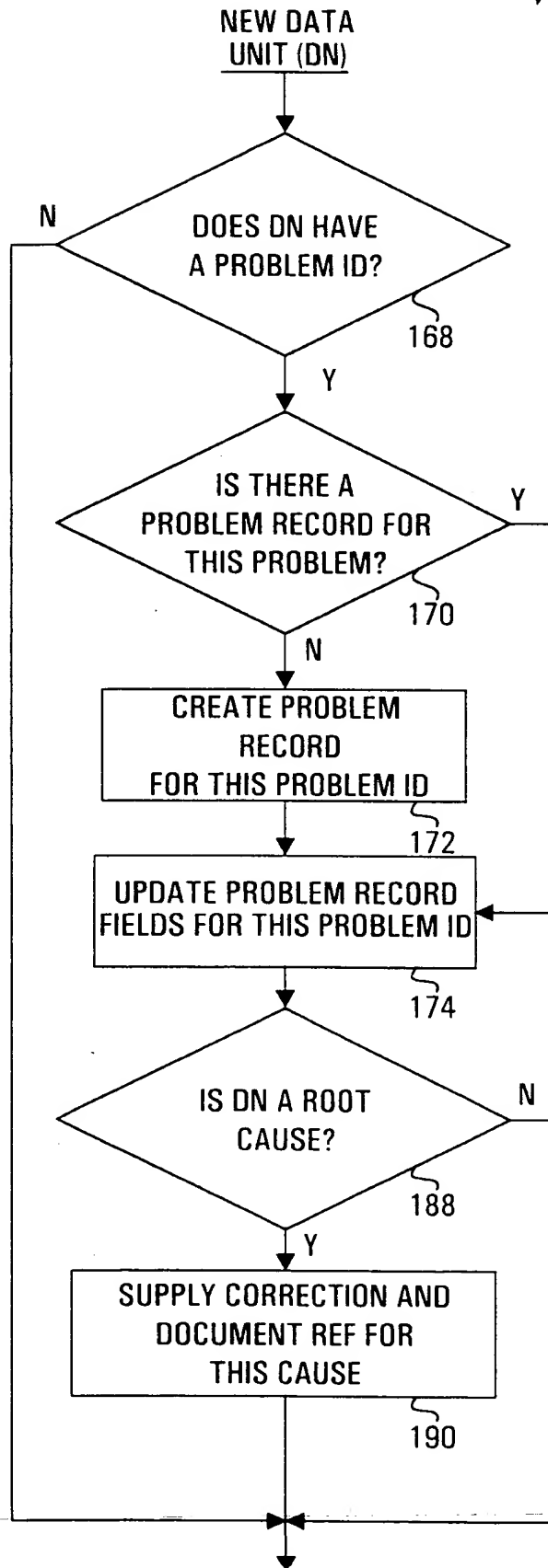


FIG. 11

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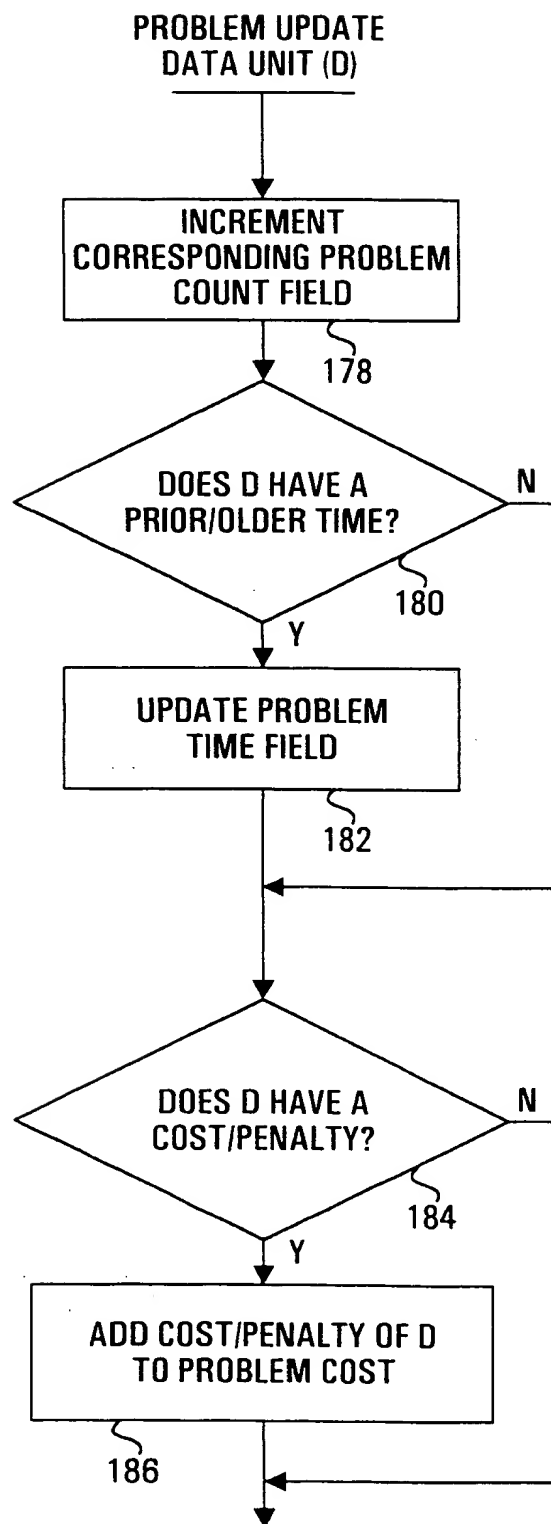


FIG. 12